

OM-929 196 903B

February 2000

Specifications Covered by this Manual: 500 438

Processes



Gas Metal Arc (MIG) Welding

Flux Cored Arc (FCAW) Welding

Description

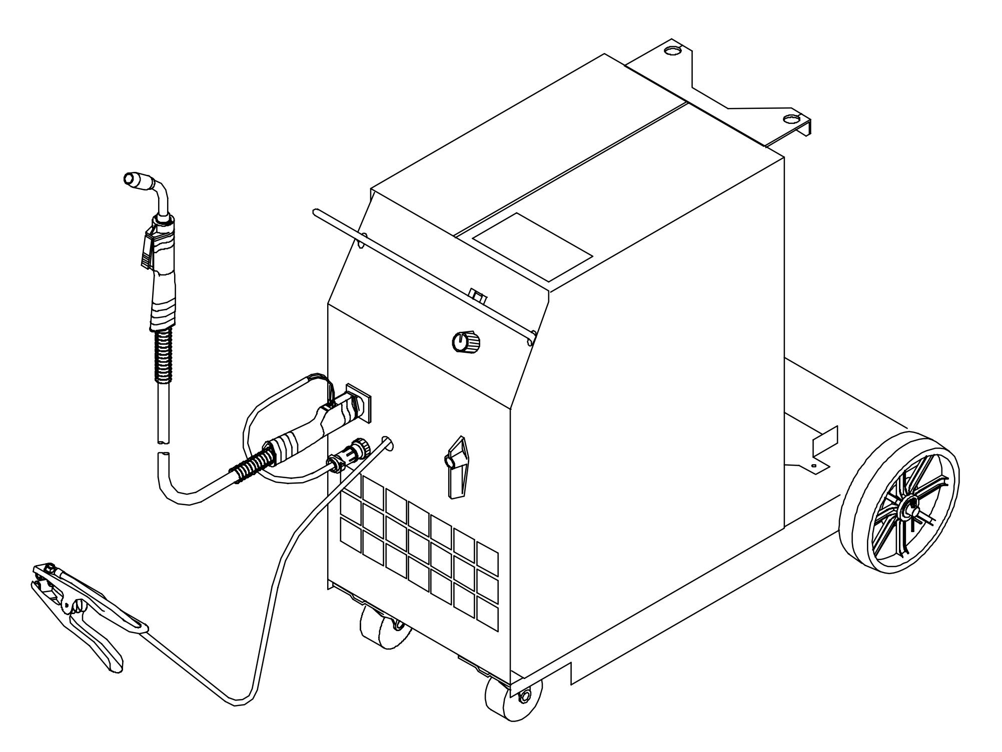


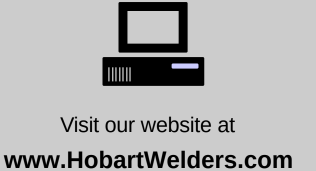




Arc Welding Power Source and Wire Feeder

BETA-MIG 1800 And M-15 Gun



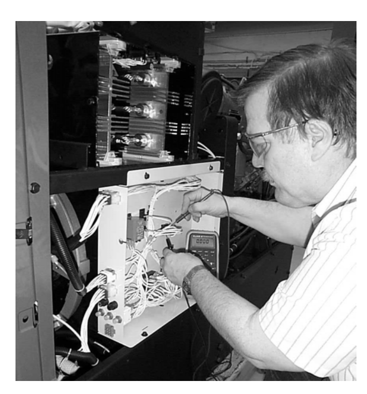


Visit our website at

www.HobartWelders.com

OWNER'S MANUAL

From Hobart to You



Thank you and *congratulations* on choosing Hobart. Now you can get the job done and get it done right. We know you don't have time to do it any other way.

This Owner's Manual is designed to help you get the most out of your Hobart products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Hobart you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide which exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.



Hobart is registered to the ISO 9001 Quality System Standard.

5/3/1 WARRANTY

Working as hard as you do – every power source from Hobart is backed by the best warranty in the business.

Hobart Welders manufactures a full line of welders and welding related equipment. For information on other quality Hobart products, contact your local Hobart distributor to receive the latest full line catalog or individual catalog sheets. **To locate your nearest distributor or service agency call 1-877-Hobart1.**

Hobart offers a Technical Manual which provides more detailed service and parts information for your unit. To obtain a Technical Manual, contact your local distributor. Your distributor can also supply you with Welding Process Manuals such as SMAW, GTAW, GMAW, and GMAW-P.

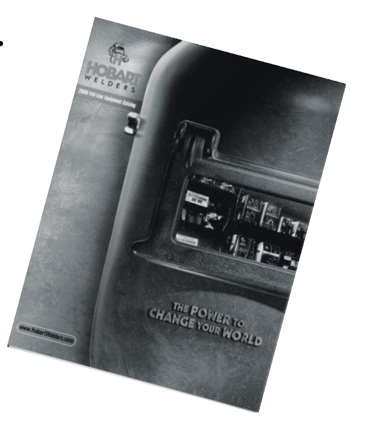




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⚠ WARNING

This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

The following terms are used interchangeably throughout this manual: Stick = SMAW

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

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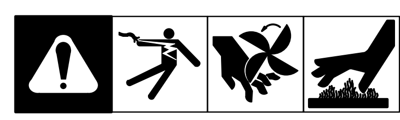
1-1. Symbol Usage



Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ **Marks a special safety message.**

☞ *Means “Note”; not safety related.*



This group of symbols means Warning! Watch Out! possible ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Arc Welding Hazards

▲ **The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-4. Read and follow all Safety Standards.**

▲ **Only qualified persons should install, operate, maintain, and repair this unit.**

▲ **During operation, keep everybody, especially children, away.**

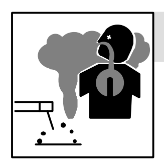
ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install and ground this equipment according to its Owner’s Manual and national, state, and local codes.
- Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.



FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

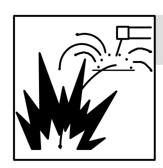
- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor, use an approved air-supplied respirator.
- Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.



ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

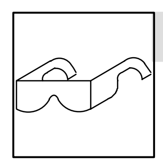
- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.



WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.



FLYING METAL can injure eyes.

- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.



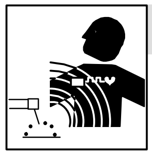
BUILDUP OF GAS can injure or kill.

- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.



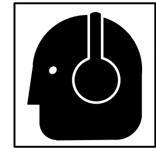
HOT PARTS can cause severe burns.

- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.



MAGNETIC FIELDS can affect pacemakers.

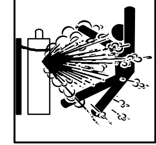
- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.



NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.



CYLINDERS can explode if damaged.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

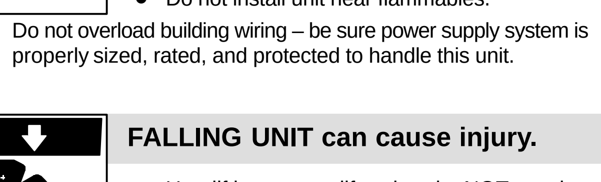
- Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder – explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

1-3. Additional Symbols For Installation, Operation, And Maintenance



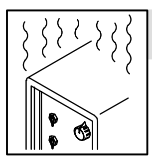
FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.



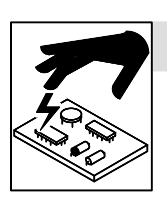
FALLING UNIT can cause injury.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.



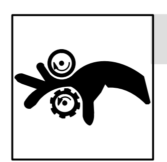
OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



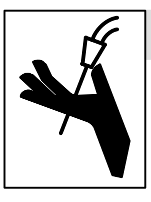
STATIC (ESD) can damage PC boards.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.



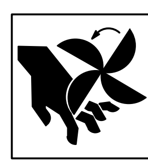
MOVING PARTS can cause injury.

- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.



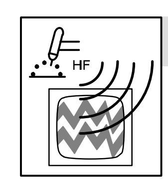
WELDING WIRE can cause injury.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.



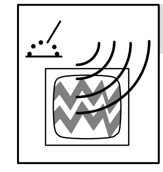
MOVING PARTS can cause injury.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.



H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.



ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1-4. Principal Safety Standards

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami FL 33126

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami, FL 33126

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

Safe Practices For Occupation And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY 10018.

Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

1-5. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: “The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard.” However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

About Pacemakers:

Pacemaker wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended.

SECTION 1 – CONSIGNES DE SECURITE – LIRE AVANT UTILISATION

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1-1. Signification des symboles



Signifie Mise en garde ! Soyez vigilant ! Cette procédure présente des risques de danger ! Ceux-ci sont identifiés par des symboles adjacents aux directives.

▲ **Identifie un message de sécurité particulier.**

☞ *Signifie NOTA ; n'est pas relatif à la sécurité.*

Ce groupe de symboles signifie Mise en garde ! Soyez vigilant ! Il y a des risques de danger reliés aux CHOCS ÉLECTRIQUES, aux PIÈCES EN MOUVEMENT et aux PIÈCES CHAUDES. Reportez-vous aux symboles et aux directives ci-dessous afin de connaître les mesures à prendre pour éviter tout danger.

1-2. Dangers relatifs au soudage à l'arc

▲ **Les symboles présentés ci-après sont utilisés tout au long du présent manuel pour attirer votre attention et identifier les risques de danger. Lorsque vous voyez un symbole, soyez vigilant et suivez les directives mentionnées afin d'éviter tout danger. Les consignes de sécurité présentées ci-après ne font que résumer l'information contenue dans les normes de sécurité énumérées à la section 1-4. Veuillez lire et respecter toutes ces normes de sécurité.**

▲ **L'installation, l'utilisation, l'entretien et les réparations ne doivent être confiés qu'à des personnes qualifiées.**

▲ **Au cours de l'utilisation, tenir toute personne à l'écart et plus particulièrement les enfants.**



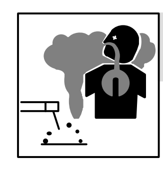
UN CHOC ÉLECTRIQUE peut tuer.

Un simple contact avec des pièces électriques peut provoquer une électrocution ou des blessures graves. L'électrode et le circuit de soudage sont sous tension dès que l'appareil est sur ON. Le circuit d'entrée et les circuits internes de l'appareil sont également sous tension à ce moment-là. En soudage semi-automatique ou automatique, le fil, le dévidoir, le logement des galets d'entraînement et les pièces métalliques en contact avec le fil de soudage sont sous tension. Des matériels mal installés ou mal mis à la terre présentent un danger.

- Ne jamais toucher les pièces électriques sous tension.
- Porter des gants et des vêtements de protection secs ne comportant pas de trous.
- S'isoler de la pièce et de la terre au moyen de tapis ou d'autres moyens isolants suffisamment grands pour empêcher le contact physique éventuel avec la pièce ou la terre.
- Ne pas se servir de source électrique àcourant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique àcourant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique àcourant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installer et mettre à la terre correctement cet appareil conformément à son manuel d'utilisation et aux codes nationaux, provinciaux et municipaux.
- Toujours vérifier la terre du cordon d'alimentation – Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Vérifier fréquemment le cordon d'alimentation pour voir s'il n'est pas endommagé ou dénudé – remplacer le cordon immédiatement s'il est endommagé – un câble dénudé peut provoquer une électrocution.
- Mettre l'appareil hors tension quand on ne l'utilise pas.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité quand on travaille en hauteur.
- Maintenir solidement en place tous les panneaux et capots.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.

Il y a DU COURANT CONTINU IMPORTANT dans les convertisseurs après la suppression de l'alimentation électrique.

- Arrêter les convertisseurs, débrancher le courant électrique, et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie entretien avant de toucher les pièces.



LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- A l'intérieur, ventiler la zone et/ou utiliser un échappement au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est insuffisante, utiliser un respirateur à alimentation d'air homologué.
- Lire les spécifications de sécurité des matériaux (MSDSs) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé, et si nécessaire, en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.



LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

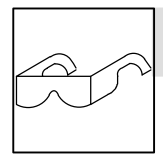
- Porter un casque de soudage muni d'un écran de filtre approprié pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des protections approuvés pour les oreilles si le niveau sondre est trop élevé.
- Utiliser des écrans ou des barrières pour protéger des tiers de l'éclair et de l'éblouissement; demander aux autres personnes de ne pas regarder l'arc.
- Porter des vêtements de protection constitué dans une matière durable, résistant au feu (cuir ou laine) et une protection des pieds.



LE SOUDAGE peut provoquer un incendie ou une explosion.

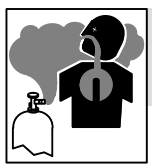
Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Ne pas souder dans un endroit là où des étincelles peuvent tomber sur des substances inflammables.
- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologués.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les normes de sécurité).
- Brancher le câble sur la pièce le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection dépourvus d'huile tels que des gants en cuir, une chemise en matériau lourd, des pantalons sans revers, des chaussures hautes et un couvre chef.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.



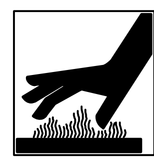
DES PARTICULES VOLANTES peuvent blesser les yeux.

- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.



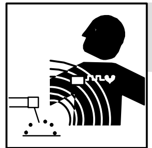
LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz protecteur en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.



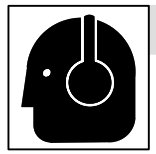
DES PIÈCES CHAUDES peuvent provoquer des brûlures graves.

- Ne pas toucher des parties chaudes à mains nues
- Prévoir une période de refroidissement avant d'utiliser le pistolet ou la torche.



LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

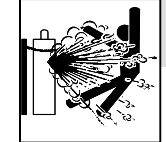
- Porteurs de stimulateur cardiaque, restez à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.



LE BRUIT peut affecter l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

- Porter des protections approuvés pour les oreilles si le niveau sondre est trop élevé.



Si des BOUTEILLES sont endommagées, elles pourront exploser.

Des bouteilles de gaz protecteur contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée – risque d'explosion.
- Utiliser seulement des bouteilles de gaz protecteur, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Ne pas tenir la tête en face de la sortie en ouvrant la soupape de la bouteille.
- Maintenir le chapeau de protection sur la soupape, sauf en cas d'utilisation ou de branchement de la bouteille.
- Lire et suivre les instructions concernant les bouteilles de gaz comprimé, les équipements associés et les publications P-1 CGA énumérées dans les normes de sécurité.

1-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance



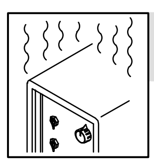
Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces infllammables.
- Ne pas installer l'appareil à proximité de produits inflammables
- Ne pas surcharger l'installation électrique – s"assurer que l'alimentation est correctement dimensionné et protégé avant de mettre l'appareil en service.



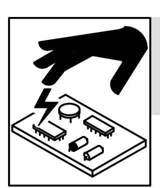
LA CHUTE DE L'APPAREIL peut blesser.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariot, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un engin d'une capacité appropriée pour soulever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.



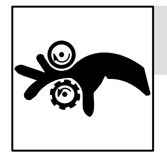
L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement, respecter le cycle opératoire nominal.
- Réduire le courant ou le cycle opératoire avant de recommancer le soudage.
- Ne pas obstruer les passages d'air du poste.



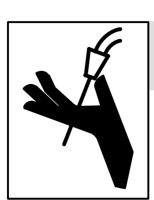
LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes de circuits imprimes.



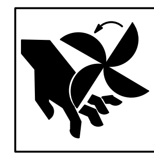
DES ORGANES MOBILES peuvent provoquer des blessures.

- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.



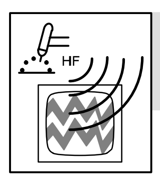
LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Ne pas appuyer sur la gachette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.



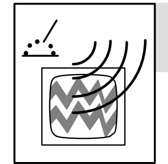
DES ORGANES MOBILES peuvent provoquer des blessures.

- Rester à l'écart des organes mobiles comme le ventilateur.
- Maintenir fermés et fixement en place les portes, panneaux, recouvrements et dispositifs de protection.



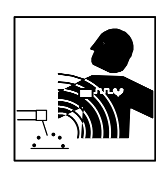
LE RAYONNEMENT HAUTE FRÉQUENCE (H.F.) risque de provoquer des interférences.

- Le rayonnement haute frequence peut provoquer des interférences avec les équipements de radio–navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et et un blindage pour réduire les interférences éventuelles.



LE SOUDAGE À L'ARC risque de provoquer des interférences.

- L'énergie électromagnétique risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.



LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

- Porteurs de stimulateur cardiaque, restez à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.

1-4. Principales normes de sécurité

Safety in Welding and Cutting, norme ANSI Z49.1, de l'American Welding Society, 550 N.W. Lejeune Rd, Miami FL 33126

Safety and Health Sandards, OSHA 29 CFR 1910, du Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Recommended Safe Practice for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, norme AWS F4.1, de l'American Welding Society, 550 N.W. Lejeune Rd, Miami FL 33126

National Electrical Code, NFPA Standard 70, de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, de la Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Règles de sécurité en soudage, coupage et procédés connexes, norme CSA W117.2, de l'Association canadienne de normalisation, vente de normes, 178 Rexdale Boulevard, Rexdale (Ontario) Canada M9W 1R3.

Safe Practices For Occupation And Educational Eye And Face Protection, norme ANSI Z87.1, de l'American National Standards Institute, 1430 Broadway, New York, NY 10018.

Cutting and Welding Processes, norme NFPA 51B, de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

1-5. Information sur les champs électromagnétiques

Données sur le soudage électrique et sur les effets, pour l'organisme, des champs magnétiques basse fréquence

Le courant de soudage, pendant son passage dans les câbles de soudage, causera des champs électromagnétiques. Il y a eu et il y a encore un certain souci à propos de tels champs. Cependant, après avoir examiné plus de 500 études qui ont été faites pendant une période de recherche de 17 ans, un comité spécial ruban bleu du National Research Council a conclu: "L'accumulation de preuves, suivant le jugement du comité, n'a pas démontré que l'exposition aux champs magnétiques et champs électriques à haute fréquence représente un risque à la santé humaine". Toutefois, des études sont toujours en cours et les preuves continuent à être examinées. En attendant que les conclusions finales de la recherche soient établies, il vous serait souhaitable de réduire votre exposition aux champs électromagnétiques pendant le soudage ou le coupage.

Afin de réduire les champs électromagnétiques dans l'environnement de travail, respecter les consignes suivantes :

1 Garder les câbles ensembles en les torsadant ou en les attachant avec du ruban adhésif.
2 Mettre tous les câbles du côté opposé de l'opérateur.
3 Ne pas courber pas et ne pas entourer pas les câbles autour de votre corps.
4 Garder le poste de soudage et les câbles le plus loin possible de vous.
5 Relier la pince de masse le plus près possible de la zone de soudure.

Consignes relatives aux stimulateurs cardiaques :

Les personnes qui portent un stimulateur cardiaque doivent avant tout consulter leur docteur. Si vous êtes déclaré apte par votre docteur, il est alors recommandé de respecter les consignes ci–dessus.

SECTION 2 – INTRODUCTION

2-1. Specifications

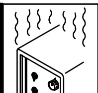
Rated Output	Max. Open Circuit Voltage	Amps Input at Rated Output, 60 Hz, Single-Phase			
		200 V	230 V	KVA	KW
150 A at 23 VDC, 60% Duty Cycle	33	30 1.6*	26 1.4*	6 0.27*	5 0.13*

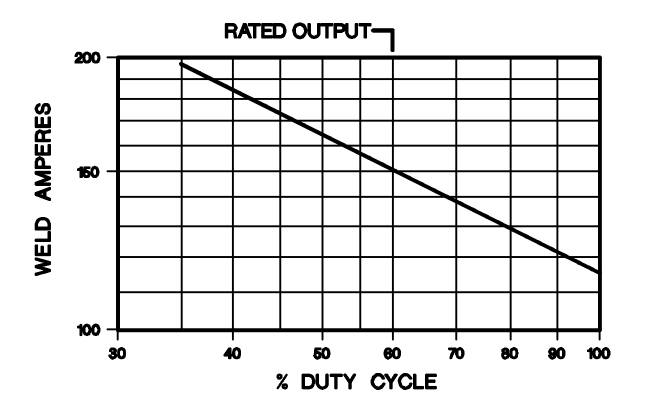
Wire Type and Diameter			Wire Feed Speed	Dimensions	Weight
Solid Steel/ Stainless Steel	Aluminum	Flux Cored	90–650 IPM (2.3–16.5 m/min)	H: 29-7/8 in (759 mm) W: 15-1/8 in (384 mm) D: 33-3/8 in (848 mm)	195 lb (88 kg)
.023 – .035 in (0.6 – 0.9 mm)	.030 – .035 in (0.8 – 0.9 mm)	.030 – .045 in (0.8 – 1.2 mm)			

***** While idling

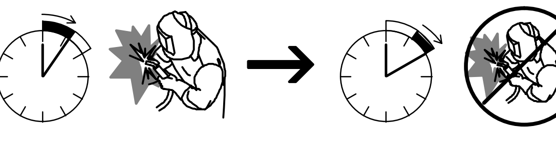
2-2. Duty Cycle And Overheating







60% Duty Cycle At 150 Amperes



6 Minutes Welding

4 Minutes Resting

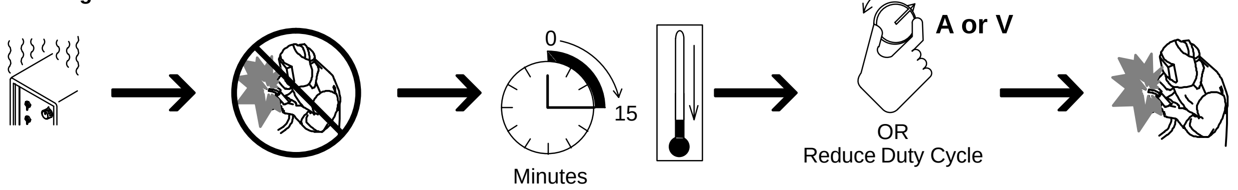
Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

If unit overheats, thermostat(s) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or voltage, or duty cycle before welding.

▲ **Exceeding duty cycle can damage unit and void warranty.**

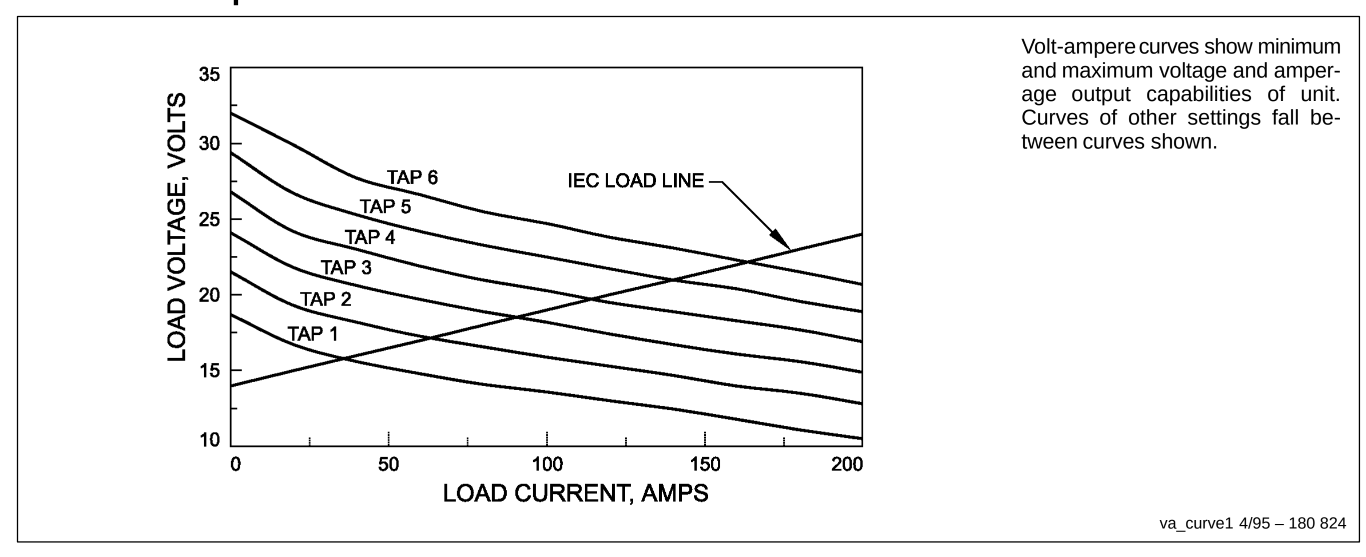
Overheating





duty1 4/95 – 181 009

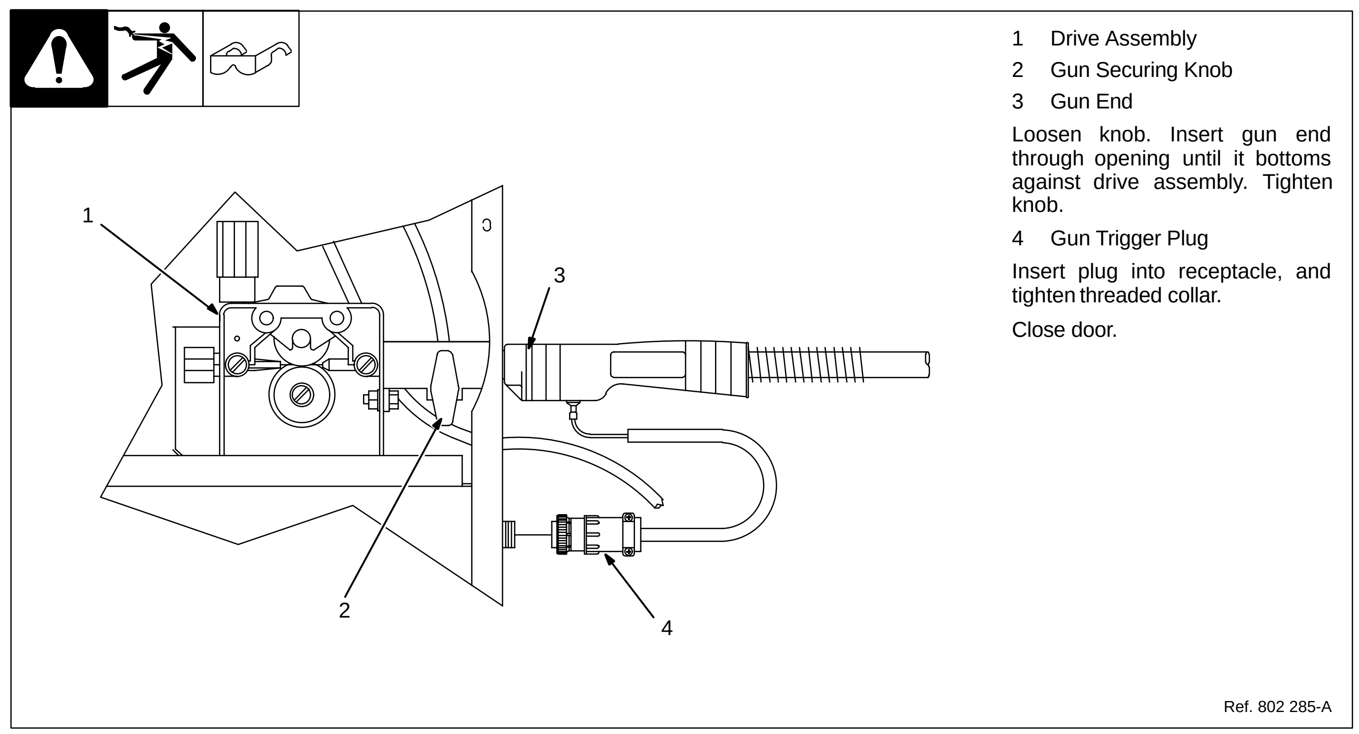
2-3. Volt-Ampere Curves



Volt-ampere curves show minimum and maximum voltage and amperage output capabilities of unit. Curves of other settings fall between curves shown.

va_curve1 4/95 – 180 824

2-4. Installing Welding Gun



1 Drive Assembly

2 Gun Securing Knob

3 Gun End

Loosen knob. Insert gun end through opening until it bottoms against drive assembly. Tighten knob.

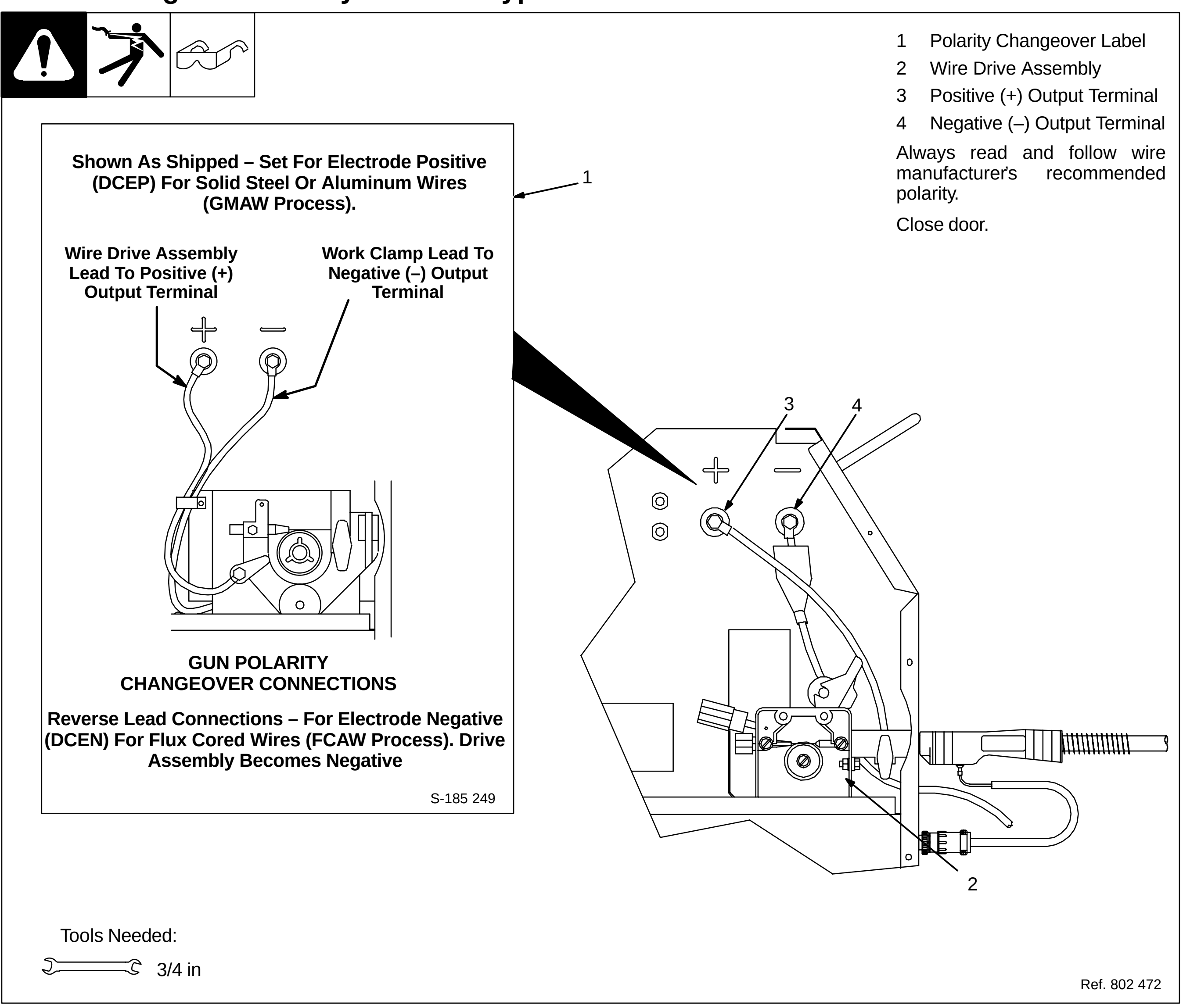
4 Gun Trigger Plug

Insert plug into receptacle, and tighten threaded collar.

Close door.

Ref. 802 285-A

2-5. Setting Gun Polarity For Wire Type



1 Polarity Changeover Label
2 Wire Drive Assembly
3 Positive (+) Output Terminal
4 Negative (–) Output Terminal

Always read and follow wire manufacturer's recommended polarity.

Close door.

2-6. Installing Gas Supply

Chain gas cylinder to running gear, wall, or other stationary support so cylinder cannot fall and break off valve.

1 Regulator/Flow Gauge

Install so face is vertical.

2 Gas Hose Connection

Fitting has 5/8-18 right-hand threads.

3 Flow Adjust

Typical flow rate is 20 cfh (cubic feet per hour). Check wire manufacturer's recommended flow rate (see Section 3-2). This flow gauge can be adjusted between 5 and 25 cfh.

4 CO_2 Adapter

Customer Supplied

5 O-Ring

Install adapter with O-ring between regulator/flow gauge and CO_2 cylinder.

Argon Gas

OR

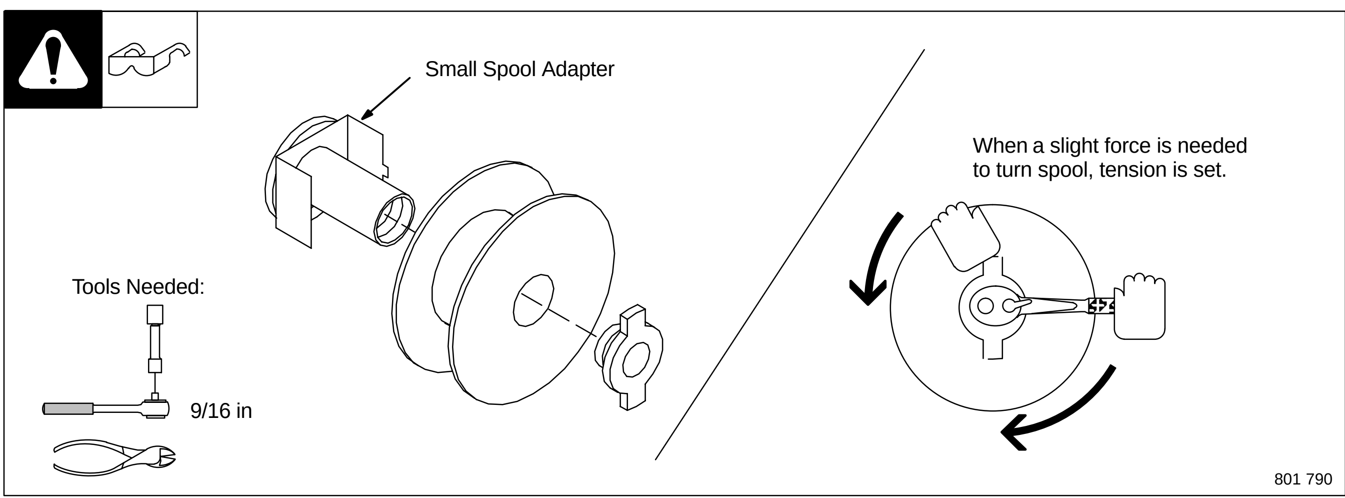
CO_2 Gas

Tools Needed:

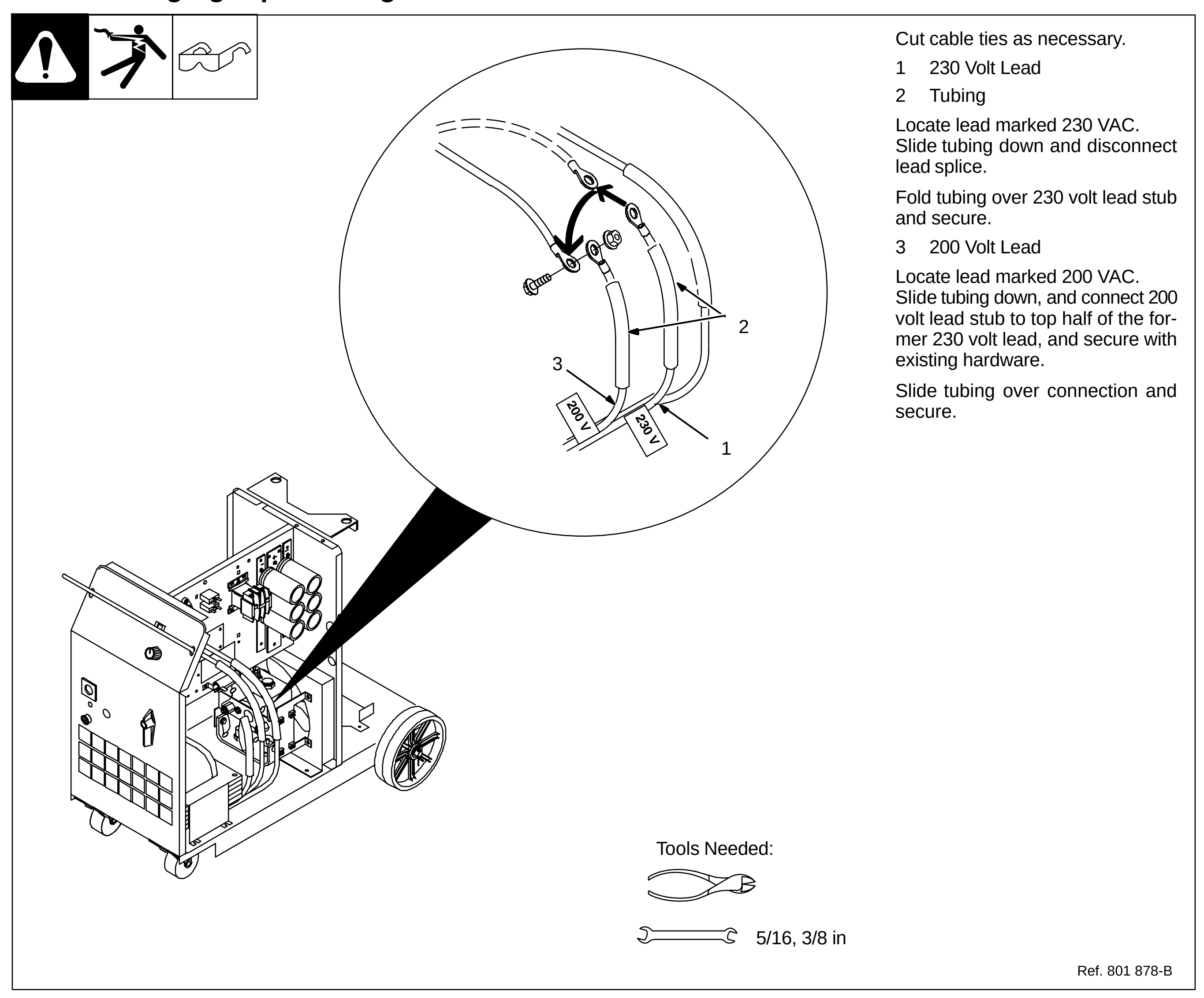
1-1/8, 5/8 in

Ref. 801 789 / Ref. 149 827-B / Ref. 158 697-A

2-7. Installing Wire Spool And Adjusting Hub Tension



2-8. Changing Input Voltage From 230 Volts To 200 Volts



Cut cable ties as necessary.

1 230 Volt Lead

2 Tubing

Locate lead marked 230 VAC. Slide tubing down and disconnect lead splice.

Fold tubing over 230 volt lead stub and secure.

3 200 Volt Lead

Locate lead marked 200 VAC. Slide tubing down, and connect 200 volt lead stub to top half of the former 230 volt lead, and secure with existing hardware.

Slide tubing over connection and secure.

2-9. Electrical Service Guide

Input Voltage	200	230
Input Amperes At Rated Output	30	26
Max Recommended Standard Fuse Rating In Amperes [1]		
Time-Delay [2]	35	30
Normal Operating 3	45	40
Min Input Conductor Size In AWG/Kcmil	10	10
Max Recommended Input Conductor Length In Feet (Meters)	97 (29)	128 (39)
Min Grounding Conductor Size In AWG/Kcmil	10	10

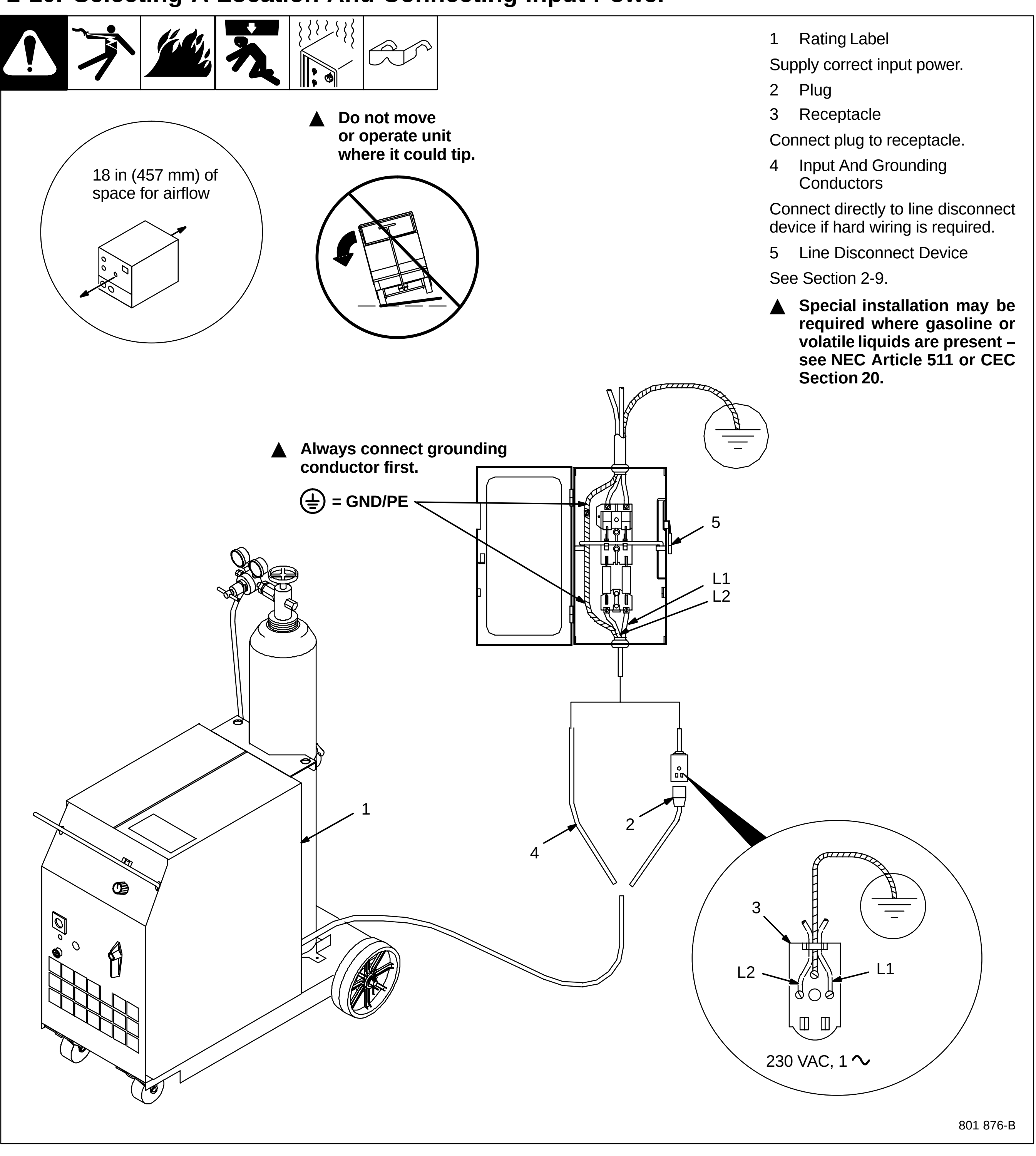
Reference: 1999 National Electrical Code (NEC)

1 Consult factory for circuit breaker applications.

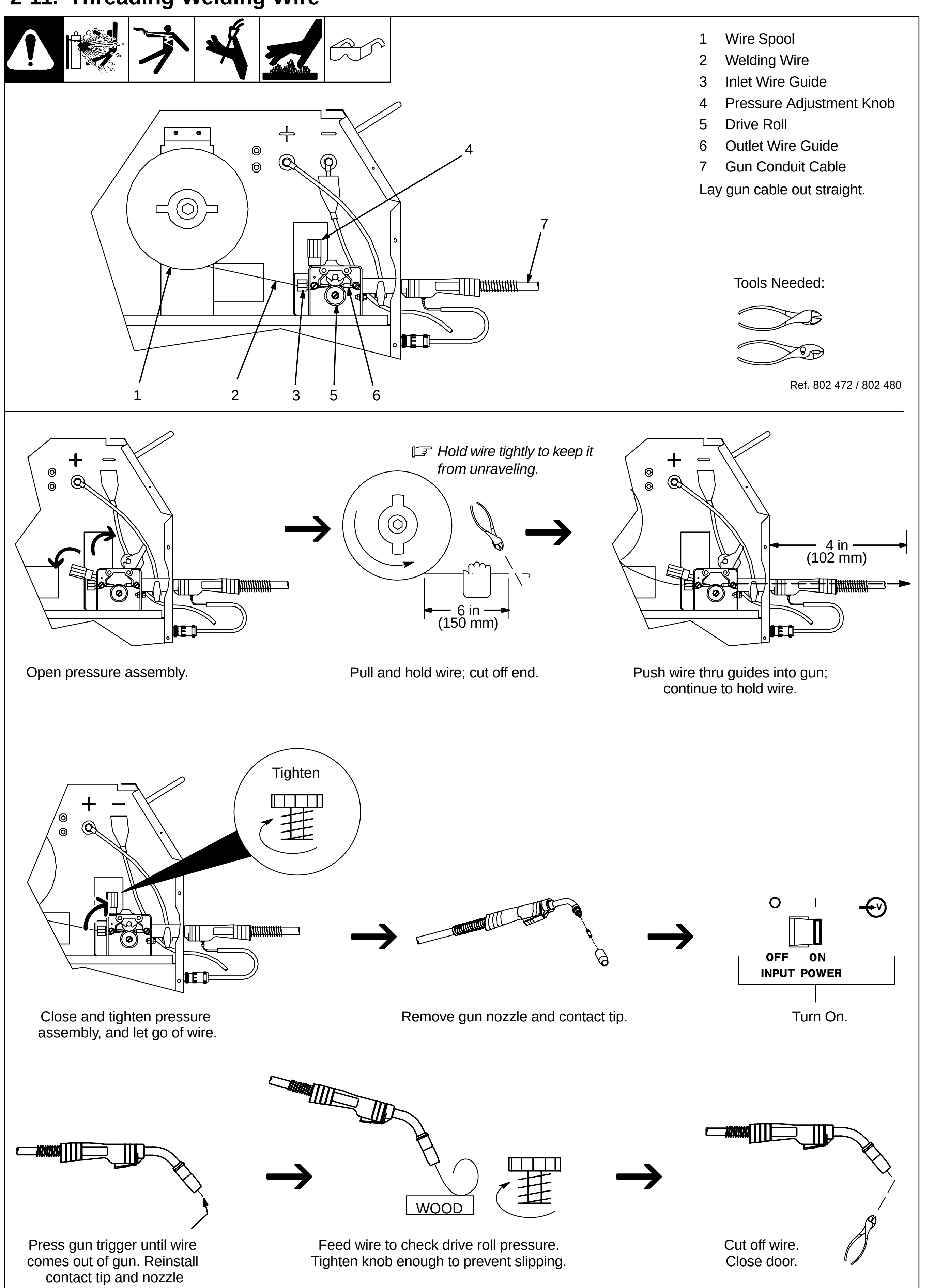
2 “Time-Delay” fuses are UL class “RK5” .

3 “Normal Operating” (general purpose – no intentional delay) fuses are UL class “K5” (up to and including 60 amp), and UL class “H” (65 amp and above).

2-10. Selecting A Location And Connecting Input Power

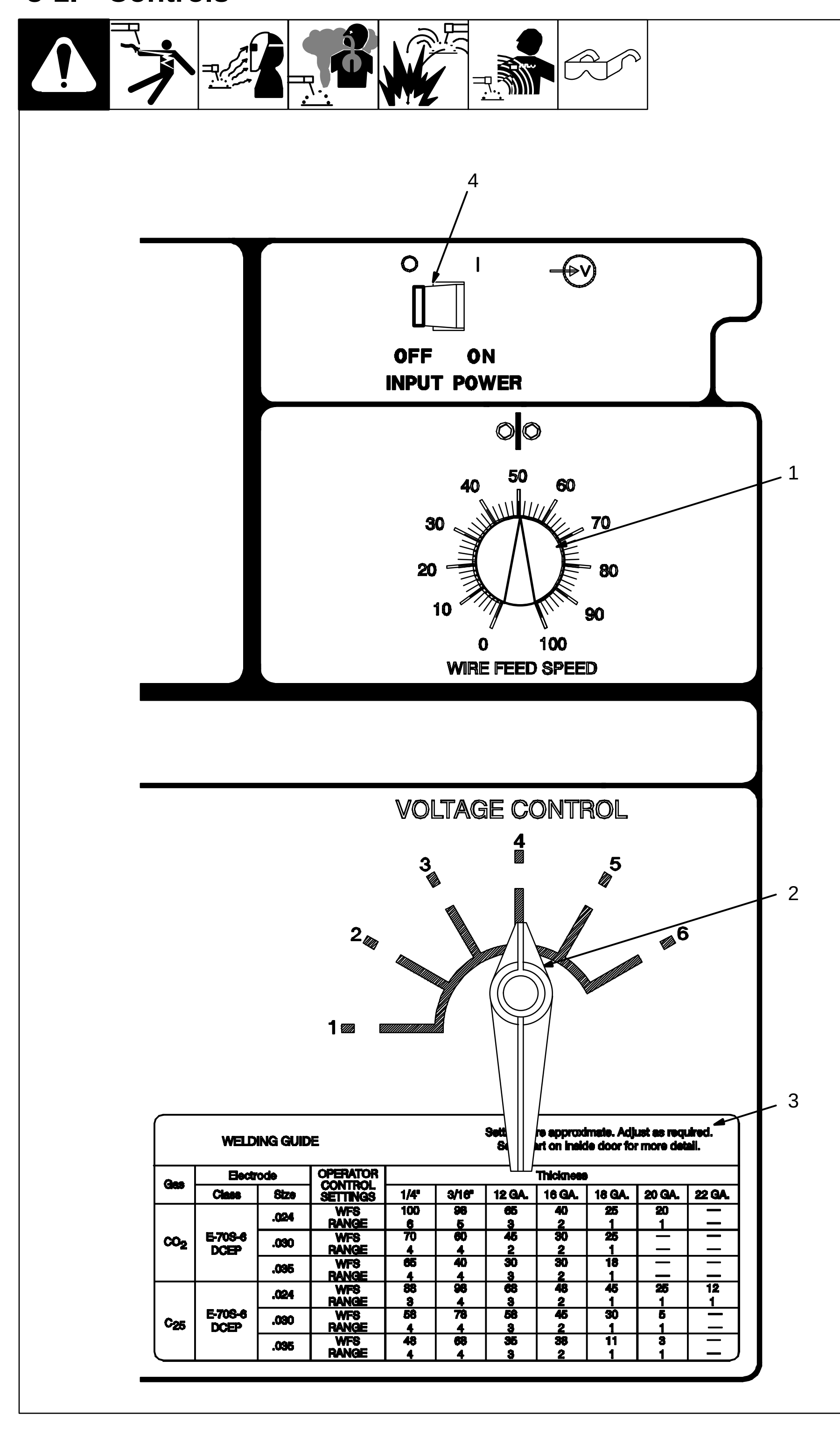


2-11. Threading Welding Wire



SECTION 3 – OPERATION

3-1. Controls



Gas	Electrode Class	Electrode Size	OPERATOR CONTROL SETTINGS	1/4"	3/16"	12 GA.	16 GA.	18 GA.	20 GA.	22 GA.
CO_2	E-70S-6 DCEP	.024	WFS	100	98	65	40	25	20	—
			RANGE	6	5	3	2	1	1	—
		.030	WFS	70	60	45	30	25	—	—
			RANGE	4	4	2	2	1	—	—
		.035	WFS	65	40	30	30	18	—	—
			RANGE	4	4	3	2	1	—	—
C_{25}	E-70S-6 DCEP	.024	WFS	88	98	68	48	45	25	12
			RANGE	3	4	3	2	1	1	1
		.030	WFS	58	78	58	45	30	5	—
			RANGE	4	4	3	2	1	1	—
		.035	WFS	48	68	35	38	11	3	—
			RANGE	4	4	3	2	1	1	—

1 Wire Speed Control

The scale around the control is percent, not wire feed speed.

2 Voltage Control

The higher the selected number, the thicker the material that can be welded (see welding guide and Section 3-2).

3 Welding Guide

4 Power Switch

Ref. 196 876-A

3-2. Weld Parameters

Wire Type, Shielding Gas, And Flow Rate	Wire Diameter (inch)	Operator Controls	Material Thickness									
			3/8 in (9.5 mm)	1/4 in (6.4 mm)	3/16 in (4.8 mm)	1/8 in (3.2 mm)	12 ga	14 ga	16 ga	18 ga	20 ga	22 ga
E70S-6 CO_2 20 cfh+	.023	Voltage Tap	– –	6	5	4	3	3	2	2	1	1
		Wire Speed	– –	100	80	65	55	45	35	25	15	5
	.030	Voltage Tap	6	5	4	3	3	2	2	1	1	– –
		Wire Speed	80	70	60	55	45	35	25	15	5	– –
	.035	Voltage Tap	6	5	4	3	3	2	2	2	– –	– –
		Wire Speed	70	60	50	45	40	30	20	10	– –	– –
E70S-6 75% Argon 25% CO_2 20 cfh+	.023	Voltage Tap	– –	5	4	3	3	2	2	1	1	1
		Wire Speed	– –	90	80	70	60	50	40	35	25	12
	.030	Voltage Tap	6	5	4	3	3	2	2	1	1	1
		Wire Speed	85	75	65	55	50	45	35	20	5	0
	.035	Voltage Tap	6	5	4	3	3	2	2	1	1	– –
		Wire Speed	80	70	60	45	40	30	20	10	0	– –
E71T-GS Flux Core	.030	Voltage Tap	6	5	5	4	4	3	2	1	– –	– –
		Wire Speed	80	70	65	55	50	30	20	10	– –	– –
	.035	Voltage Tap	6	5	4	3	3	2	1	– –	– –	– –
		Wire Speed	60	50	40	30	25	20	10	– –	– –	– –
ER 308 Stainless Steel 90% HE / 7.5% Argon / 2.5% CO_2 20 cfh+	.023	Voltage Tap	5	4	4	4	3	3	3	2	2	2
		Wire Speed	95	85	80	60	50	50	50	30	20	20
	.030	Voltage Tap	5	5	4	3	3	2	2	2	1	– –
		Wire Speed	70	70	70	50	45	50	45	40	0	– –
	.035	Voltage Tap	6	5	5	4	3	2	2	2	– –	– –
		Wire Speed	65	40	40	30	30	25	20	10	– –	– –

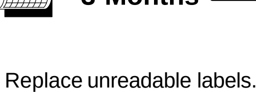
*Do not change Voltage switch position while welding. Wire Speed is a starting value only, and can be adjusted while welding. Weld conditions also depend on other variables such as stickout, travel speed, weld angle, cleanliness of metal, etc.

SECTION 4 – MAINTENANCE AND TROUBLESHOOTING

4-1. Routine Maintenance

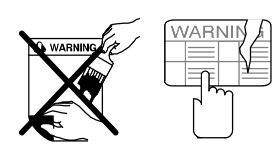


▲ **Disconnect power before maintaining.**

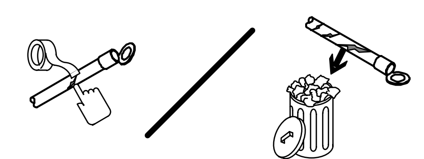


3 Months

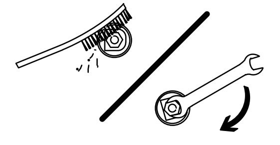
Replace unreadable labels.

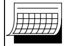


Repair or replace cracked weld cable.



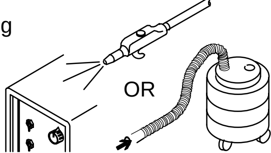
Clean and tighten weld terminals.



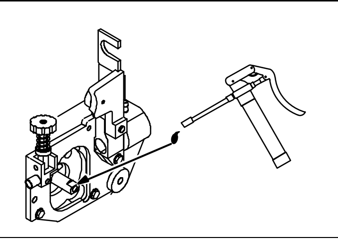


6 Months

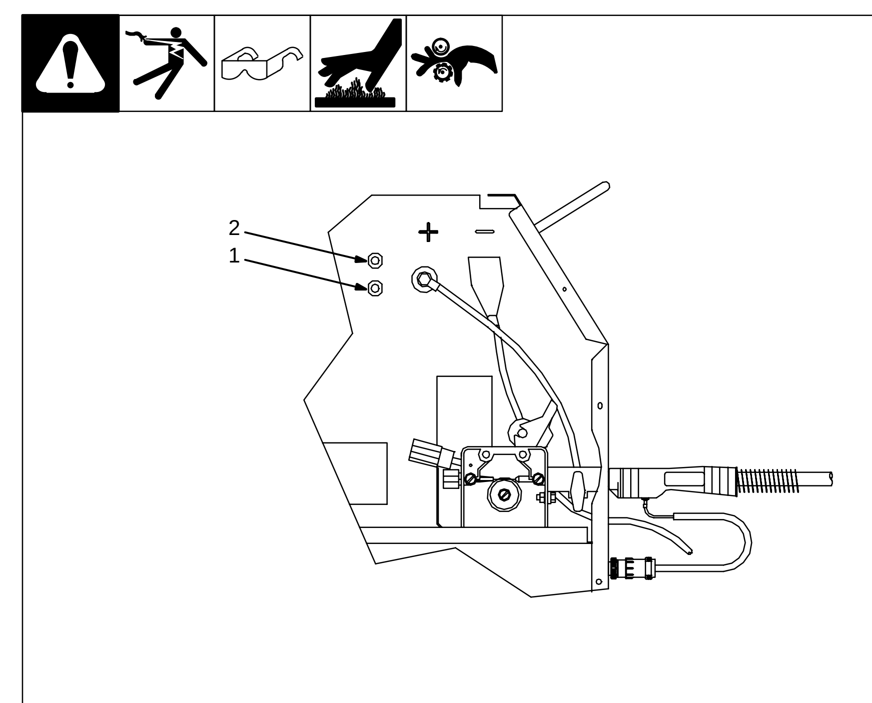
Blow out or vacuum inside. During heavy service, clean monthly.



Remove drive roll and apply light coat of oil or grease to drive motor shaft.



4-2. Circuit Breakers



▲ **Turn Off unit.**

1 Circuit Breaker CB1

CB1 protects main circuit board PC1 if drive motor shorts or fails. If CB1 opens, wire feeding stops. Check for gun liner blockage or kinks, and check for jammed wire, or binding drive rolls.

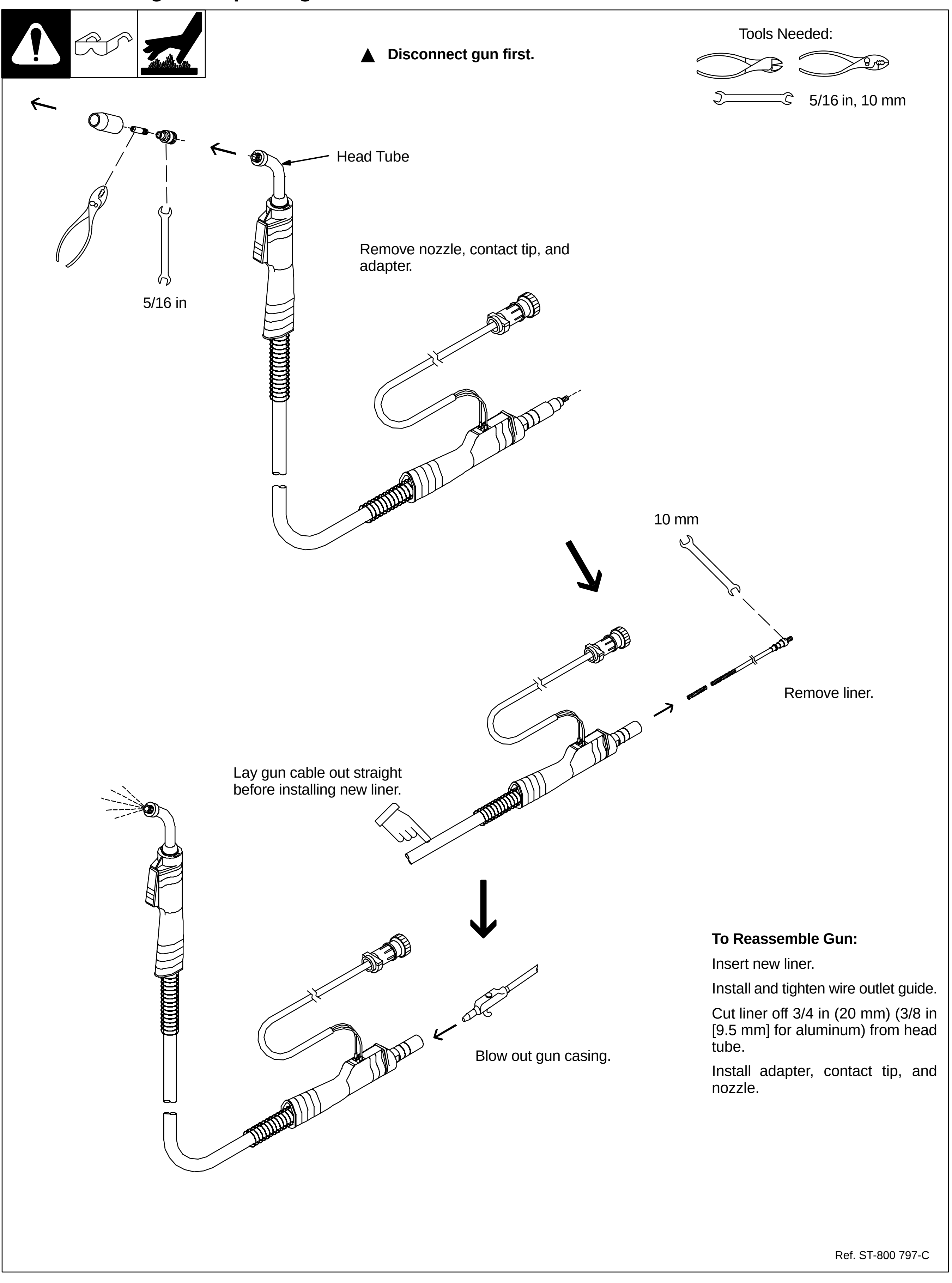
2 Circuit Breaker CB2

CB2 protects the trigger circuit from overload. If CB2 opens, weld output stops. Check gun switch, and trigger leads.

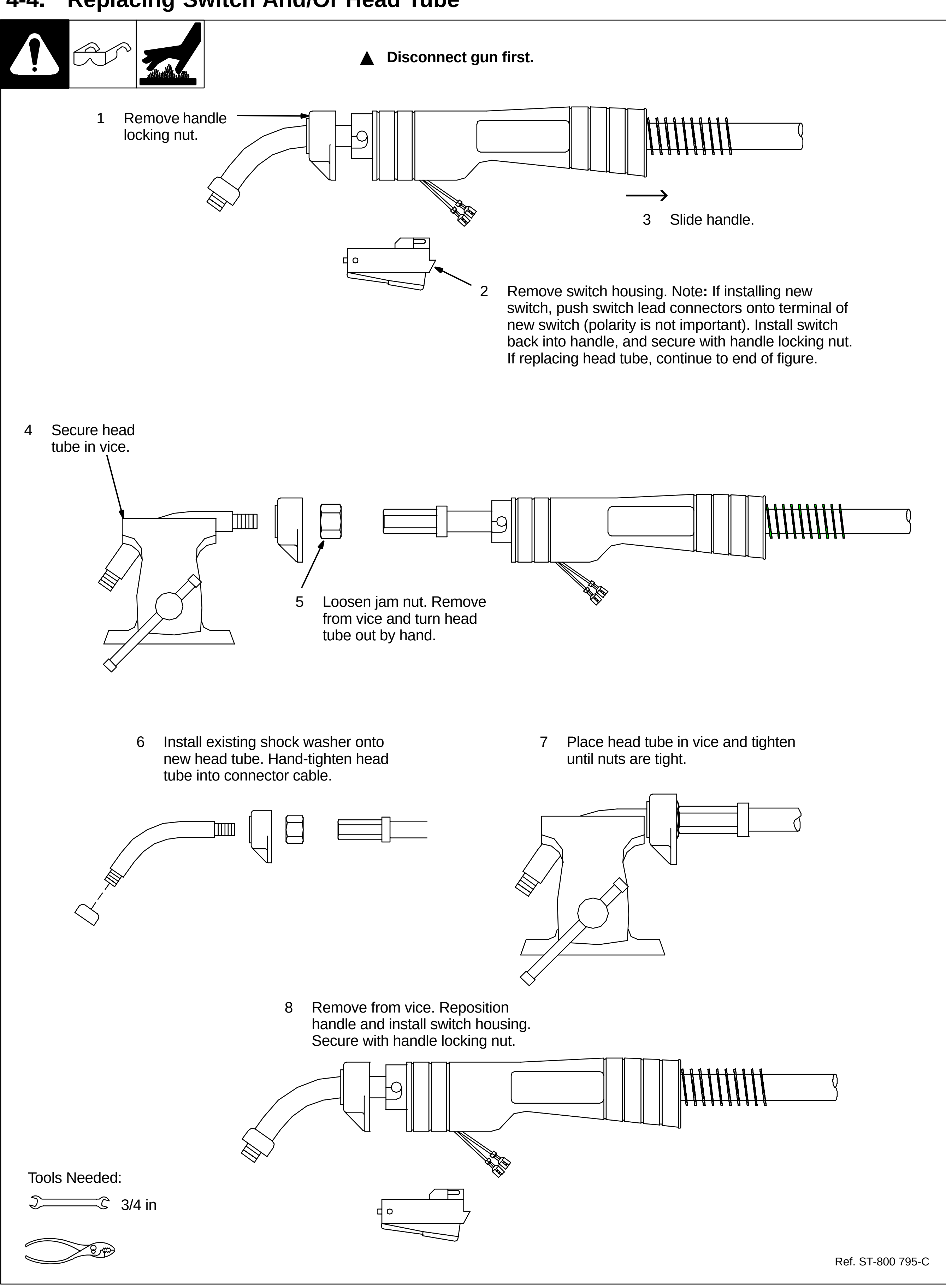
Correct problem. Press button to reset circuit breaker. Close door.

Ref. 802 472

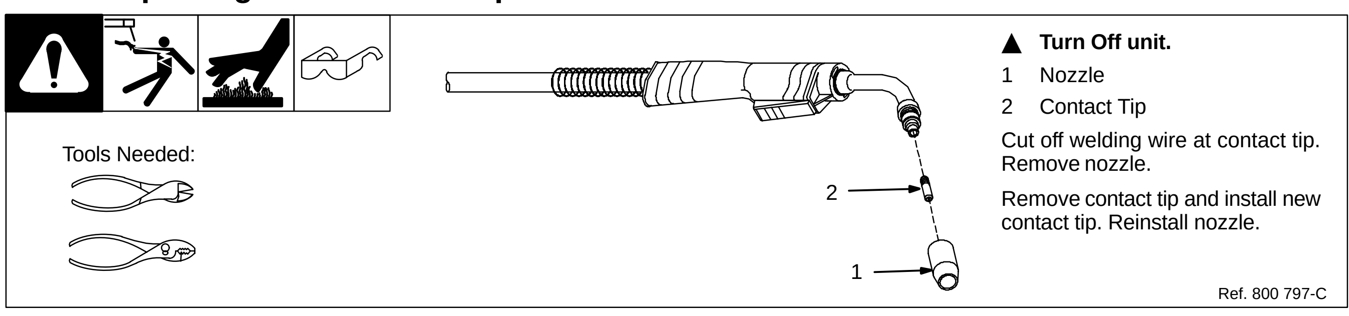
4-3. Cleaning Or Replacing Gun Liner



4-4. Replacing Switch And/Or Head Tube



4-5. Replacing Gun Contact Tip



▲ **Turn Off unit.**

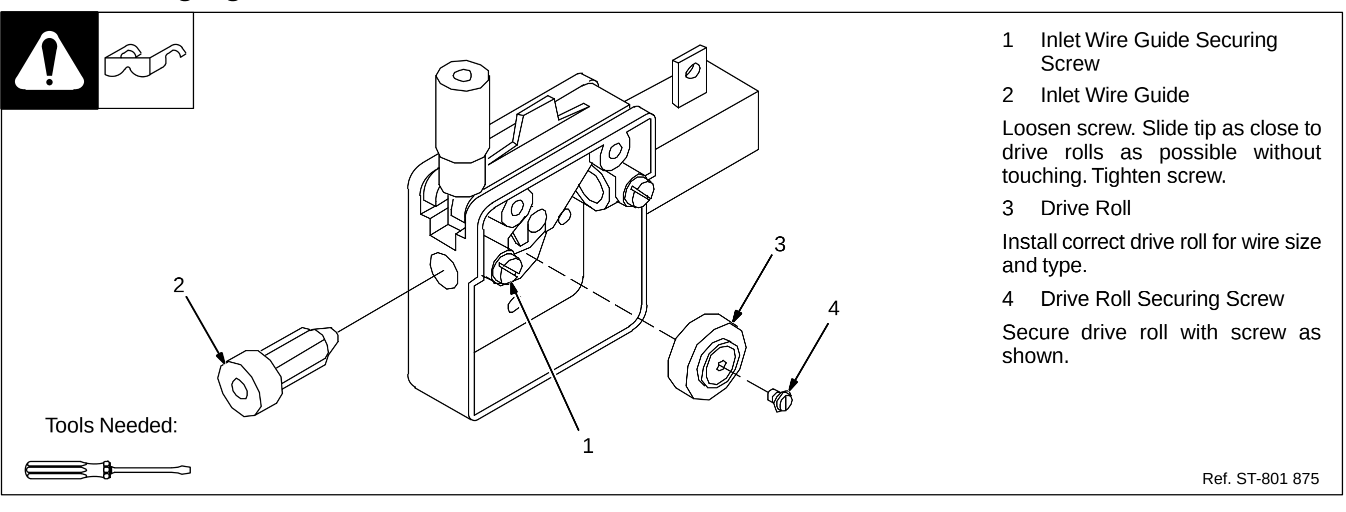
1 Nozzle

2 Contact Tip

Cut off welding wire at contact tip. Remove nozzle.

Remove contact tip and install new contact tip. Reinstall nozzle.

4-6. Changing Drive Roll And Wire Inlet Guide



1 Inlet Wire Guide Securing Screw

2 Inlet Wire Guide

Loosen screw. Slide tip as close to drive rolls as possible without touching. Tighten screw.

3 Drive Roll

Install correct drive roll for wire size and type.

4 Drive Roll Securing Screw

Secure drive roll with screw as shown.

4-7. Welding Troubleshooting Table



Welding Trouble	Remedy
No weld output; wire does not feed.	Secure power cord plug in receptacle (see Section 2-10).
	Check and replace power switch if necessary.
	Check circuit breakers CB1 and/or CB2, and reset if necessary (see Section 4-2).
	Replace building line fuse or reset circuit breaker if open (see Section 2-10).
	Secure gun plug in receptacle or repair leads, or replace trigger switch (see Sections 2-4 and 4-4).
	Thermostat TP1 open (overheating). Allow fan to run; the thermostat will close when the unit has cooled (see Section 2-2).
No weld output; wire feeds.	Connect work clamp to get good metal to metal contact.
	Replace contact tip (see Section 4-5).
Low weld output.	Connect unit to proper input voltage or check for low line voltage (see Section 2-10).
Low, high, or erratic wire speed.	Readjust front panel settings (see Section 3-1).
	Change to correct size drive roll (see Section 4-6).
	Readjust drive roll pressure (see Section 2-11).
	Replace inlet guide, contact tip, and/or liner if necessary (see Section 4-6).

4-8. Wire Drive/Gun Troubleshooting Table

Wire Drive/Gun Trouble	Remedy
Electrode wire feeding stops during welding.	Straighten gun cable and/or replace damaged parts (see Section 4-3).
	Adjust drive roll pressure (see Section 2-11).
	Readjust hub tension (see Section 2-7).
	Check circuit breakers CB1 and/or CB2, and reset if necessary (see Section 4-2).
	Replace contact tip if blocked (see Section 4-5).
	Clean or replace wire inlet guide or liner if dirty or plugged (see Section 4-6).
	Replace drive roll if worn or slipping (see Section 4-6).
	Secure gun plug in receptacle or repair leads, or replace trigger switch (see Section 4-4 and/or 4-3).
	Check and clear any restrictions at drive assembly and liner (see Section 4-3).
	Have nearest Factory Authorized Service Agent check drive motor.

SECTION 5 – ELECTRICAL DIAGRAM

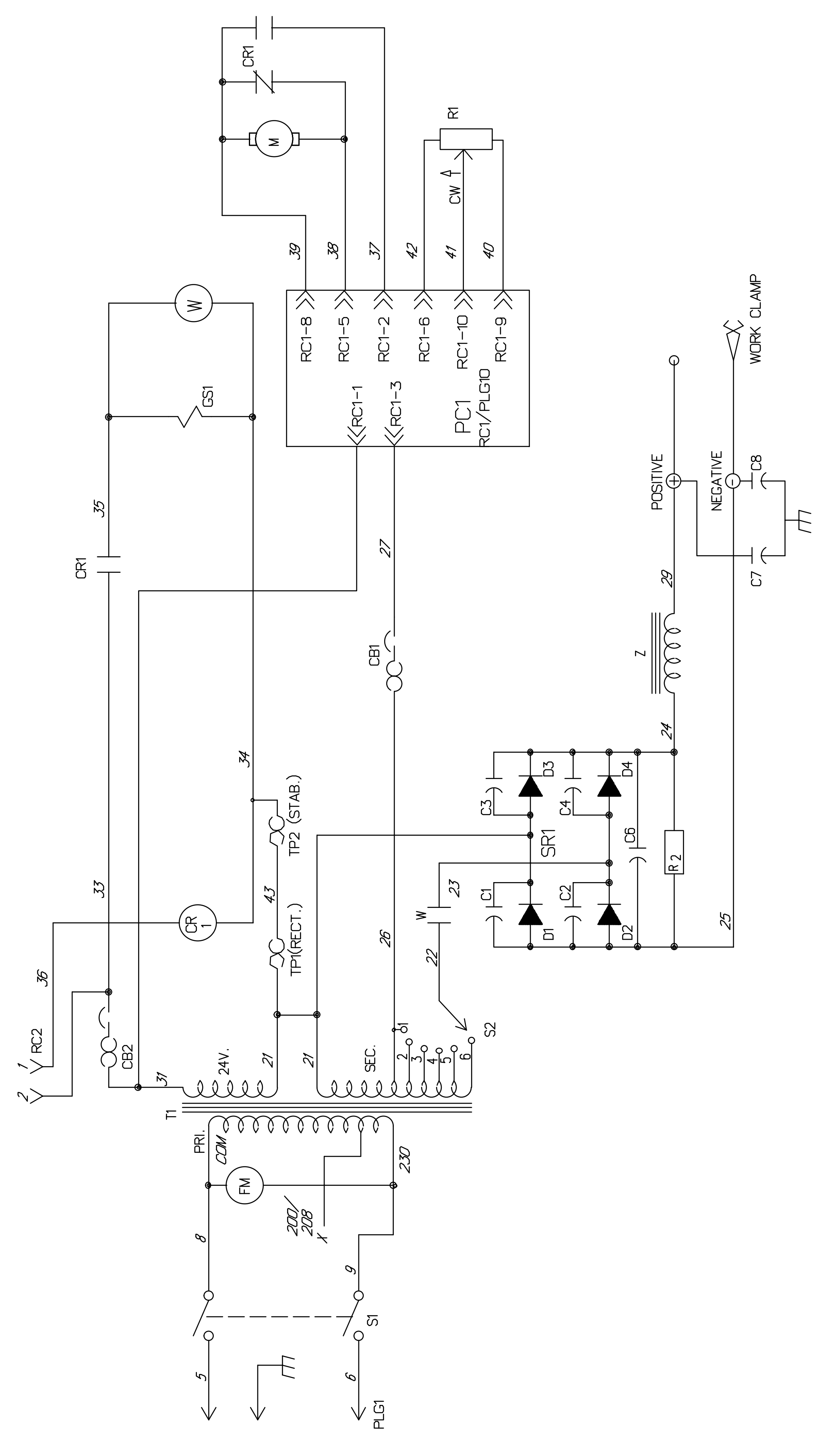


Figure 5-1. Circuit Diagram For Welding Power Source

SECTION 6 – PARTS LIST

☞ *Hardware is common and not available unless listed.*

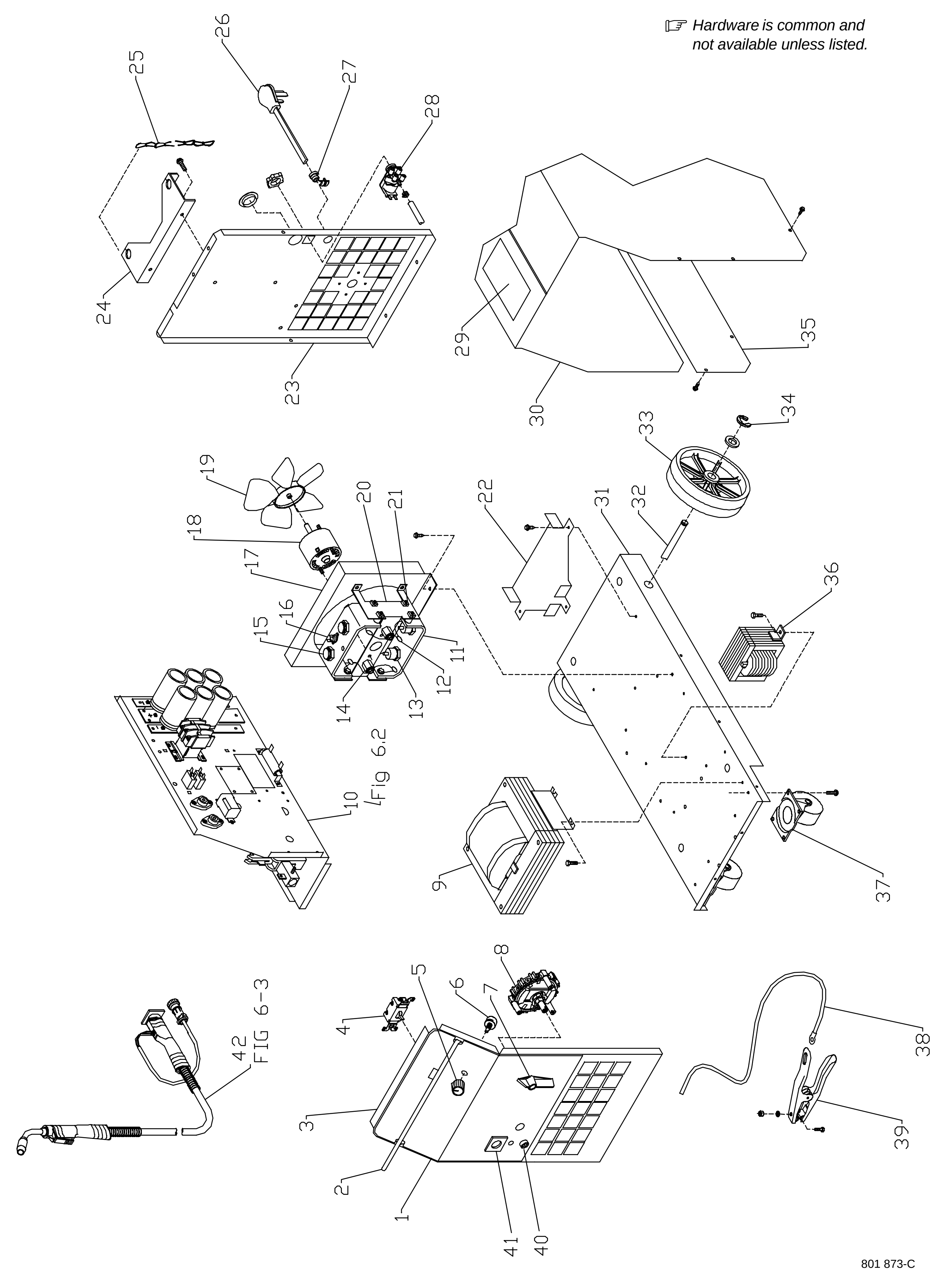


Figure 6-1. Main Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 6-1. Main Assembly	
1		196 902	LABEL, set, nameplate & side decals	1
2		184 670	HANDLE	1
3		184 657	PANEL, front	1
4	S1	124 511	SWITCH, tgl DPST 40A 600VAC (On/Off)	1
5		184 733	KNOB	2
6	R1	035 897	POTENTIOMETER, CP 1/T 2W 1K linear (Voltage Control/Wire Feed Speed)	1
7		148 956	HANDLE, switch	1
8	S2	153 197	SWITCH, selector 6 position	1
9	T1	184 669	TRANSFORMER, pwr main 200/230/460	1
10		Fig 6-2	CENTER BAFFLE w/COMPONENTS	1
	SR1	184 674	RECTIFIER, (consisting of)	1
11		170 757	.. HEAT SINK, rectifier	2
12	C1-4	048 420	.. CAPACITOR, cer disc .01uf 1000VDC	4
13	D2,4	168 348	.. DIODE, rect 150A 300V RP	2
14		026 947	.. STAND-OFF, insul .250-20 x 1.000 lg	2
15	D1,3	168 349	.. DIODE, rect 150A 300V SP	2
16	TP1	171 600	.. THERMOSTAT, NC	1
17		184 716	.. WIND TUNNEL	1
18	FM	148 808	.. MOTOR, fan 230V 50/60 Hz	1
19		150 783	.. BLADE, fan 9.000 5wg 39 deg w/mtg hardware	1
20		152 625	.. BRACKET, mtg fan/rectifier	1
21		152 862	.. GROMMET, scr .250	8
22		184 715	BRACKET, bottle retainer	1
23		184 658	PANEL, rear	1
		+193 328	LABEL	1
24		184 665	BRACKET, bottle	1
25		188 441	CHAIN, safety	1
26	PLG1	181 072	CORD SET, 250V	1
27		111 443	BUSHING, strain relief .240/.510 OD	1
28	GS1	125 785	VALVE, 24VAC	1
29		134 464	LABEL, warning general precautionary	1
30		+184 660	WRAPPER ASSEMBLY	1
31		184 656	BASE	1
32		186 879	AXLE	1
33		090 693	WHEEL	2
34		121 614	RING, retaining	2
35		184 664	PANEL, side	1
36	Z	180 989	STABILIZER	1
	TP2	163 266	THERMOSTAT, NC	1
37		008 999	CASTER	2
38		146 149	CABLE, work	1
39		130 750	CLAMP, work	1
		192 121	REGULATOR/FLOWMETER	1
		144 108	HOSE, gas	1
40		048 282	RECEPTACLE W/SOCKETS	1
41		204 413	BUSHING, snap-in nyl	1
42		169 589	M-15 GUN Fig 6-3	1

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

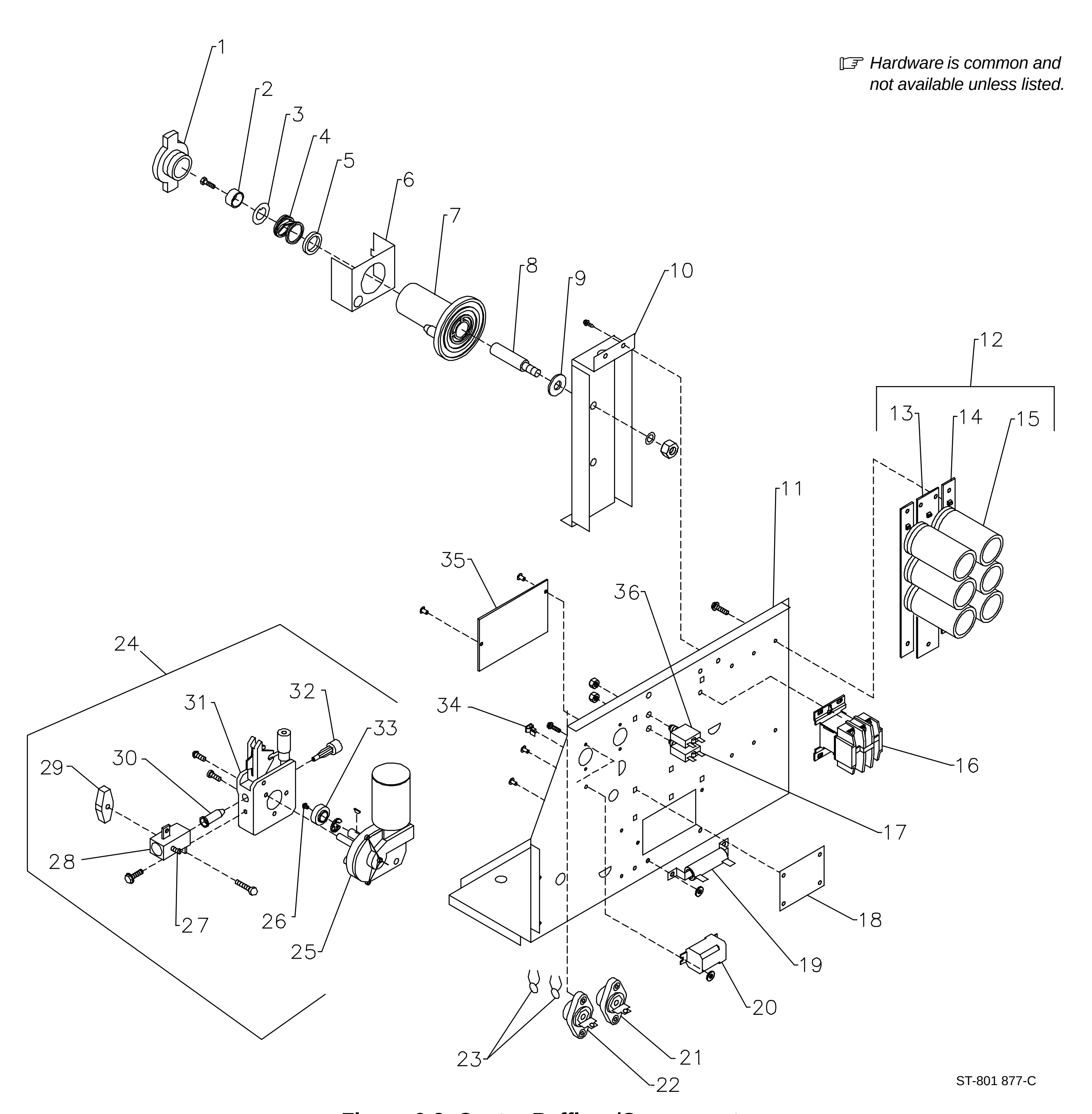


Figure 6-2. Center Baffle w/Components

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 6-2. Center Baffle w/Components (Fig 6-1 Item 10)

1		170 201H	NUT, retaining w/warning label	1
2		184 738	SPACER, spool	1
3		374 551	WASHER, flat keyed	1
4		184 739	SPRING, cprsn	1
5		405 448	WASHER, friction	1
6		184 703	BRACKET	1
7		405 376	HUB	1
8		374 546	SHAFT, spool support	1
9		602 246	WASHER, flat	1
10		184 666	REEL SUPPORT	1
11		196 875	BAFFLE, center	1
12	C6	184 681	CAPACITOR ASSEMBLY, (consisting of)	1
13		082 902	STRIP, mtg center capacitor	1
14		092 186	STRIP, mtg capacitor	2
15		178 796	CAPACITOR, elctlt 20000uf	6
		083 147	GROMMET, scr No. 8/10	6
16	W	189 486	CONTACTOR, def prp 40A 3P	1
17	CB1	183 492	CIRCUIT BREAKER, man reset 1P 10A 250VAC	1
18	PC1	171 986	CIRCUIT CARD, control	1
	PLG10	165 745	CONNECTOR & SOCKETS	1
19	R2	091 685	RESISTOR, WW fxd 50W 25 ohm	1
20	CR1	072 817	RELAY, encl 24VAC DPDT	1
21		097 416	TERMINAL, pwr output black	1
22		097421	TERMINAL, pwr output red	1
23	C7,8	186 014	CAPACITOR ASSEMBLY	2
24		196 625	DRIVE ASSY, wire (consisting of)	1
25	M	196 601	MOTOR, gear	1
26		203 081	SCREW, feedroll	1
27		079 633	FITTING, hose brs barbed nipple	1
28		193 681	BLOCK, connector gun	1
29		126 652	KNOB, T 2.000 bar	1
30		193 707	GUIDE, wire adapter	1
31		184 741	HEAD, feed	1
32		203 025	GUIDE, wire inlet	1
33		184 742	ROLL, drive V groove	1
34		134 201	STAND-OFF SUPPORT, PC card	4
35		184 965	COVER	1
36	CB2	180 912	CIRCUIT BREAKER, man reset 1P 5A 250V	1

+When ordering a component originally displaying a precautionary label, the label should also be ordered.
To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

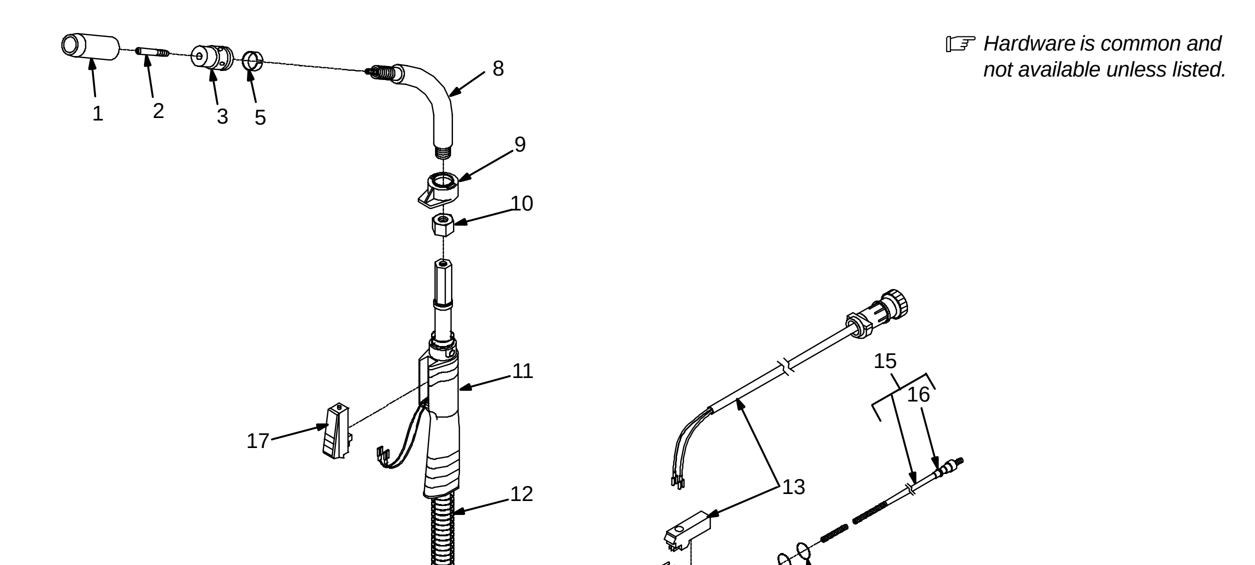


Figure 6-3. M-15 Gun

Item No.	Part No.	Description	Quantity
	169 589	**Figure 6-3. M-15 Gun (Fig 6-1 Item 41)**	
1	169 715	.. NOZZLE, slip type .500 orf flush	1
2	♦087 299	.. TIP, contact scr .023 wire x 1.125	
2	♦000 067	.. TIP, contact scr .030 wire x 1.125	
2	♦000 068	.. TIP, contact scr .035 wire x 1.125	
2	♦000 069	.. TIP, contact scr .045 wire x 1.125	
3	169 716	.. ADAPTER, contact tip	1
5	170 470	.. RING, retaining	1
8	169 718	.. TUBE, head	1
9	169 738	.. NUT, locking handle	2
10	194 524	.. NUT, jam	1
11	169 737	.. HANDLE	2
12	169 741	.. STRAIN RELIEF, cable	2
13	180 433	.. CORD, trigger assembly	1
14	079 974	.. O-RING, .500 ID x .103CS rbr	2
15	♦194 010	.. LINER, monocoil .023/.025 wire x 15ft (consisting of)	1
15	♦194 011	.. LINER, monocoil .030/.035 wire x 15ft (consisting of)	1
15	♦194 012	.. LINER, monocoil .035/.045 wire x 15ft (consisting of)	1
16	079 975	.... O-RING, .187 ID x .103CS rbr	1
17	196 255	.. SWITCH, trigger	1

♦Optional

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.



Effective October 1, 1999

5/3/1 WARRANTY applies to all Handler 135 and 175 models, Airforce 250, 250A, and 375 models, and Champion 10,000 models.This warranty also applies to the Beta-Mig 1800, Champ 1435, 2060, 8500 models, Ironman 250, Stickmate models, Tigmate models, and HSW-15 and HSW-25 spot welder models effective with Serial No. KK200262 and newer.

This limited warranty supersedes all previous Hobart warranties and is exclusive with no other guarantees or warranties expressed or implied.
Hobart products are serviced by Hobart or Miller Authorized Service Agencies.

Warranty Questions?

Call
1-877-HOBART1
for your local
Hobart distributor.

Service
You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

Support
Need fast answers to the tough welding questions? Contact your distributor or call 1-800-332-3281. The expertise of the distributor and Hobart is there to help you, every step of the way.

LIMITED WARRANTY – Subject to the terms and conditions below, Hobart/Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Hobart equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Hobart. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, Hobart/Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Hobart/Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Hobart/Miller will provide instructions on the warranty claim procedures to be followed.

Hobart/Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to a North American distributor or eighteen months after the equipment is sent to an International distributor.

1. 5 Years — Parts and Labor
   * Original Main Power Rectifiers
   * Transformers
   * Stabilizers
   * Reactors
   * Rotors, Stators and Brushes
2. 3 Years — Parts and Labor
   * Drive Systems
   * PC Boards
   * Idle Module
   * Solenoid Valves
   * Switches and Controls
   * Spot Welder Transformer
3. 1 Year — Parts and Labor (90 days for industrial use)
   * Motor-Driven Guns
   * MIG Guns/TIG Torches
   * Relays
   * Contactors
   * Regulators
   * Water Coolant Systems
   * HF Units
   * Running Gear/Trailers
   * Plasma Cutting Torches
   * Remote Controls
   * Replacement Parts (No labor)
   * Accessories
   * Field Options
     (NOTE: Field options are covered for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
4. Engines, batteries and tires are warranted separately by the manufacturer.

Hobart's 5/3/1 Limited Warranty shall not apply to:

1. **Consumable components such as contact tips, cutting nozzles, slip rings, drive rolls, gas diffusers, plasma torch tips and electrodes, weld cables, and tongs and tips, or parts that fail due to normal wear.**
2. Items furnished by Hobart/Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Hobart/Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

HOBART PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Hobart's/Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Hobart/Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Hobart/Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Hobart's/Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Hobart/Miller authorized service facility as determined by Hobart/Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

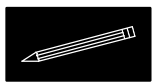
TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL HOBART/MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

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Owner's Record

Please complete and retain with your personal records.

Model Name	Serial/Style Number
Purchase Date	(Date which equipment was delivered to original customer.)
Distributor	
Address	
City	
State	Zip



Resources Available

Always provide Model Name and Serial/Style Number.

To locate a Distributor, retail or service location:

Call 1-877-Hobart1 or visit our website at www.HobartWelders.com

For technical assistance:

Call 1-800-332-3281

Contact your Distributor for:

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Personal Safety Equipment

Service and Repair

Replacement Parts

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Circuit Diagrams

Welding Process Handbooks

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For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.

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